

IN THE CLAIMS:

Please cancel claims 32, 33, 41, 42 and 45, and amend claims 26, 37 and 46 as follows:

1-25. (Cancelled)

26. (Currently Amended) A method for monitoring a vacuum-based process sequentially applied to a stream of substantially identical articles by a processing tool, so as to terminate the operation of the processing tool upon detecting an end-point signal corresponding to a predetermined value of a thickness of a layer of the article being processed, the method comprising:

- (a) operating said processing tool to apply said process to the article, while continuously applying an end-point detector to said article under processing and generating the end-point signal;
- (b) in response to the end-point signal generated by the end-point detector, completing the processing of said article, and then
- (c) applying an in-line monitoring by an integrated monitoring tool to the processed said article after the completeness of said processing thereof, and for measuring the thickness value resulting from the processing;
- (ed) analyzing the measured thickness value, and upon determining that the end-point signal is to be corrected by a correction value corresponding to the predetermined value of the thickness, to be used for adjusting said end-point signal corresponding to the predetermined value of the thickness by said

correction value for using the corrected end-point signal for  
terminating the processing of another article in the stream of  
articles.

27. (Previously presented) The method according to Claim 26, wherein  
said end-point signal is set during the processing of a first article in the stream of articles.

28. (Previously presented) The method according to Claim 26, wherein  
said end-point signal is a predetermined spectrum of light returned from the article.

29. (Previously presented) The method according to Claim 26, wherein  
the determination of the correction value comprises the following steps:

- determining the difference between said predetermined value of the thickness and said  
measured value;
- determining the ratio of said difference to the processing rate, to determine a time period  
on which the time processing of the article should be changed to obtain said  
predetermined value of the thickness;
- determining the value of the end-point signal corresponding to the changed processing  
time to be used for correcting the end-point signal for processing another article in the  
stream of articles.

30. (Previously presented) The method according to Claim 29, wherein  
said difference is determined for at least two articles, and an average difference value is used  
for determining said ratio.

31. (Previously presented) The method according to Claim 29, wherein said difference is determined for at least two articles, and an accumulated difference value is used for determining said ratio.

32. (Canceled)

33. (Canceled)

34. (Previously presented) The method according to Claim 26, wherein said processing includes a material removal.

35. (Previously presented) The method according to Claim 26, wherein said processing is etching.

36. (Previously presented) The method according to Claim 26, wherein said stream of articles includes semiconductor wafers.

37. (Currently Amended) An end-point detection system for use with a vacuum-based processing tool which is to be sequentially applied to a stream of substantially identical articles, the system comprising:

- (a) an end-point detector accommodated within a working area defined by the processing tool when applied to the article;
- (b) an integrated monitoring tool accommodated within said processing tool outside said working area and capable of measuring a thickness of the article; and

(b~~c~~) a control unit associated with the end-point detector and with the integrated monitoring tool, the control unit being in-line operative to be responsive to data coming from the end-point detector and indicative of an endpoint-signal for terminating the processing of the article, and being adapted to continuously or periodically operate the integrated monitoring tool to perform said measuring on the processed article to be responsive to the measured data coming from the integrated monitoring tool, so as to analyze these data coming from the end-point detector and the measured data from the integrated monitoring tool and determine upon determining that the end-point signal is to be corrected by a correction value to be applied to the end-point signal corresponding to a predetermined value of the thickness of the article ~~achieved by the operating to adjust the end-point signal~~ to achieve said predetermined value when processing ~~thereof~~ further articles in the stream.

38. (Previously presented) The system according to Claim 37, wherein said end-point detector utilizes optical means.

39. (Previously presented) The system according to Claim 37, wherein said stream of the articles includes semiconductor wafers.

40. (Previously presented) The system according to Claim 37, wherein said integrated monitoring tool is capable of spectrophotometric measurements.

41. (Canceled)

42. (Canceled)

43. (Previously presented) The system according to Claim 37, wherein said processing includes a material removal.

44. (Previously presented) The system according to Claim 37, wherein said processing is etching.

45. (Canceled)

46. (Currently Amended) A material removal tool arrangement comprising a processing tool, to be sequentially applied to a stream of articles, and an end-point detection system, said end-point detection system comprising:

- (a) an end-point detector accommodated within a working area defined by the processing when applied to the article;
- (b) an integrated monitoring tool accommodated within said processing tool outside said working area and capable of applying in-line measurements of a thickness of the article under a material removal processing; and
- (c) a control unit associated with the end-point detector and with the integrated monitoring tool, the control unit being in-line operative to be responsive to data coming from the end-point signal detector and indicative of an end-point signal for terminating the material removal processing of the article, and being adapted to continuously or periodically operate the

integrated monitoring tool to perform said measuring on the  
processed article and to be responsive to the measured data  
coming from the integrated monitoring tool, so as to analyze  
these data coming from the end-point detector and the measured  
data from the integrated monitoring tool and determine upon  
determining that the end-point signal is to be corrected by a  
correction value ~~to be applied to the end-point signal~~  
corresponding to a predetermined value of the thickness of the  
article operating to adjust the end-point signal to achieved said  
predetermined value when by the processing thereof further  
articles in the stream.